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ABSTRACT

To provide educators with a compilation of available data on the implementation and operation of year-round programs, this publication incorporates reviews of evaluative studies conducted by six year-round programs: the Prince William County, Virginia, 45-15 Plan; the Valley View, Illinois, School District, 45-15 Plan; the Dade County, Florida, Quinmester Plan; the Atlanta, Georgia, Public Schools Four-Quarter Plan; the Becky-David School, Missouri, 45-15 Plan; and the Chula Vista, California, 45-15 Plan. Studies were selected that are relatively thorough in both scope and evaluative procedures and representative in terms of the type of program evaluated and geographic location of the program. Program evaluations are reviewed separately because of the variability in type of program, school characteristics, implementation procedures, measurement tools, and other factors. Most of the evaluations analyze costs; student achievement; and the attitudes of the community, parents, students, and teachers toward the program. Several of the evaluations also discuss administrator attitudes and duties, and one program evaluation considers the effect of their school's year-round program on extracurricular activities. A 40-item bibliography is included. (Author/DN)

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RESEARCH BRIEF

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EVALUATIONS OF YEAR-ROUND SCHOOL PROGRAMS

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Study Conducted and Reported by Debra D. Nygaard

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FOREWORD

In the past, school districts considering year-round plans have had to rely primarily upon the projections of feasibility studies. This ERS *Research Brief* provides educators with data on the actual results of year-round school operation. It is based on a nationwide search for reports of year-round program evaluations, the majority of which are available only from local school districts themselves.

Not all of the collected reports are treated within the text; however, all are noted in the Selected Bibliography. Readers of this publication are requested to send two or more copies of other relevant reports at their disposal in order that ERS' files will remain current and comprehensive.

A *Research Brief* is but one of several types of publications produced by ERS in its efforts to collect and report significant data and information pertaining to educational administration. In addition to its publications, ERS provides special services to the administrative teams of subscribing school systems. Through such collection, dissemination, and service activities, ERS strives to be responsive to the needs and interests of administrators throughout the nation.

A special word of gratitude is expressed to the school districts that provided materials for this *Research Brief*. We trust that this document will be of use to them and others.

Glen Robinson
Director of Research

INTRODUCTION

During the past few years, there has been a renewed interest in the concept of year-round education. Scores of school districts nationwide have conducted feasibility studies to consider the implementation of year-round plans in their schools. More than seventy districts actually have forsaken the traditional agrarian-based summer break in order to implement some type of year-round program.

Rationale for Year-Round Operation

Reportedly, the burgeoning interest in year-round education has been stimulated by needs for both curriculum reforms and alternatives to costly school construction. Feasibility studies conducted by local school districts and state departments of education cite the following rationales for year-round operation:

1. Schools that operate on a year-round basis can utilize facilities and resources more effectively.
2. Overcrowding can be alleviated or avoided without the expensive construction of new schools. School districts that are fairly stable in population can discontinue use of outmoded facilities through more effective use of other school buildings.
3. Boredom and extensive learning loss over the long summer vacation can be avoided through the scheduling of shorter vacation spans.
4. Teachers can have the opportunity to practice their profession during the summer, increase their annual salary, and improve their financial status.
5. Shorter terms and courses can provide more variety in subject matter.
6. The shorter course is a refinement toward continuous progress in an ungraded class. Faster learners can continue through courses at their own pace, while slower learners will have more frequent opportunity for remediation.
7. Students can have the opportunity to attend school year-round for acceleration, remediation, or part-time employment.

School districts may have any combination of these or other objectives in mind when they choose to operate on a year-round basis. Year-round education is a general concept, and its greatest strength probably lies in its flexibility and potential to meet various needs through hundreds of different implementation plans.

Types of Year-Round School Plans

The basic concept of year-round education is extension of school activities beyond the traditional 9-month operation. This extension occurs either by rescheduling or extending the minimum number of required attendance days.

The Rescheduled Year

In the rescheduled year, attendance days are divided into quarters, thirds, fifths, or some other fraction and separated by vacation periods.

Trimester Plan

A trimester plan consists of three 70-to-75 day terms with lengthened class periods. The total number of instructional hours in a trimester equals that in a semester. A district can then have one-third of its pupils on vacation at all times, thus realizing a space saving.

Quarter Plan

Each quarter may consist of 45 to 60 instructional days. There are several common variations of the quarter plan:

Voluntary Quarter Plan--Curriculum is revised into integral 60-day units. Pupils have the option of attending any three or all four quarters. Advantages compared to the traditional 9-month calendar are: there are more course options in terms of sequence, ability level, and number of courses available to each pupil; the plan provides greater opportunity for remediation, enrichment, and acceleration; and pupils whose economic support is needed at home can carry a lighter load in each of the four quarters, maintain employment, and complete the equivalent of three quarters of work in a 12-month span.

Staggered Quarter Plan--Curriculum is revised into 60-day units as in the Voluntary Quarter System. Pupils are assigned to attend three of the four 60-day sessions. Attendance is staggered so that three-fourths of the pupils are in attendance and one-fourth on vacation in each of the quarters. Space needs are reduced by 25 percent. The plan offers more course options than the 9-month plan and more frequent opportunity for remediation.

45-15 Plan--The 45-15 system is designed mainly to maximize space use. As in the staggered quarter plan, three-fourths of the total enrollment is in attendance at each session. Pupils are divided into four groups (usually geographic so that siblings and neighbors follow the same attendance pattern). Each group attends school for 45 instructional days followed by a 15-day vacation. By staggering entrance dates so that groups begin attendance periods 15 days apart, the first group will be going on vacation as the fourth group enters its attendance period. The process continues through four such cycles in the course of 12 calendar months, totaling 180 school days per pupil. Curriculum is divided into 45-day instructional units, providing for more continuous progress and more frequent remediation.

Quinmester Plan

The quinmester plan divides the regular academic year into four 45-day sessions and offers a fifth 45-day session in the summer. The plan usually provides the option of attending any four quinmesters or all five. The plan is more flexible than the voluntary quarter system in terms of courses, student employment, remediation, and acceleration.

The Extended Year

In the extended year, the minimum number of required attendance days for each pupil is increased. In the semester system, each of the usual 90-day terms is extended into the summer by as much as 15 days, giving a school year up to 210 instructional days. The additional time can be used for enrichment, remediation, and acceleration. At the secondary level, pupils can complete six years of academic work in five calendar years.

The extended year also can be broken into trimesters of 70 to 75 days, yielding a school year of 210 to 225 instructional days. The major advantage of the trimester, as opposed to the semester, extended year is the greater flexibility in course offerings. Similarly, the extended year can be divided into quarters of 45 to 60 instructional days, yielding even greater flexibility.

Purpose of this Research Brief

Despite the proliferation of year-round programs of all types, few have operated long enough or had the opportunity to evaluate carefully their success in realizing program objectives. Few have measured their impact upon academic achievement, financial costs, or life styles of students, parents, and staff. What are the actual benefits derived from year-round operation? What are the disadvantages?

This Research Brief attempts to provide educators with a compilation of available data on the implementation and operation of year-round programs. Included are reviews of the evaluative studies conducted by six year-round programs: the Prince William County 45-15 Plan, the Becky-David 45-15 Plan, the Chula Vista 45-15 Plan, the Valley View 45-15 Plan, the Dade County Quinmester Plan, and the Atlanta Quarter Plan. These studies were selected from a small group of evaluative studies that are currently available. Every attempt was made to select studies that are: (1) relatively thorough in both scope and evaluative procedures, and (2) representative in terms of type of program evaluated and geographic location of the program. The apparent emphasis upon the 45-15 Plan is not intended to imply program superiority; it is simply the result of the proportionately greater number of operative 45-15 Plans and subsequent program evaluations that are available for review. Program evaluations are reviewed separately due to the variability in type of program, school characteristics, implementation procedures, measurement tools, and other factors.

PRINCE WILLIAM COUNTY, VIRGINIA

45-15 PLAN

Prince William County Public School District initiated a pilot 45-15 program in June 1971. The 45-15 Plan was selected as a financially reasonable means of accommodating a rapidly expanding community and student population.

Three elementary schools and one middle school were involved in the pilot program. All are located in Dale City, a growing suburban community of approximately 20,000 persons that is situated outside Washington, D.C. After a census was completed, four geographic areas were established according to the best balance among all affected age levels. Each area was assigned to one of four attendance calendars (coded by red, green, blue, or orange). At the conclusion of the 1971-72 school year, the pilot 45-15 program was evaluated by means of an extensive opinion survey (3)*, a financial analysis (9), and a comparative study of academic achievement (11,40).

Cost Analysis

Year-round school costs incurred in 1971-72 were compared to the costs that would have been incurred in a traditional school year. The purpose of the study was to determine the long-range effectiveness of the 45-15 Plan in reducing costs. Therefore, start-up costs were appraised and reported separately, but were not included in the general comparison of on-going costs.

The analytical tool chosen for the financial analysis was selected with the idea of avoiding the problems inherent in the traditional budget reporting system, which fails to include any estimate of the cost of classroom and other building facilities in the evaluation of operational costs. The tool, known as the COST-ED Model, employs the concept of total resource consumption. Both operating funds and capital resources are included in the evaluation of total consumption.

A comparative study was conducted, based upon the actual operating characteristics of the Mills E. Godwin Middle School during 1971-72. (The Mills E. Godwin Middle School was selected for analysis because it was viewed as being most representative of the district.) The cost of the resources consumed yearly, per pupil, under the 45-15 Plan was compared to the cost per pupil under a simulated operation of the Godwin Middle School on a traditional plan.

The results are itemized in Table 1. The costs of the 1971-72 school year's 45-15 program was $1,033.60 per pupil; had Godwin been operated under a traditional-term program that year, the per pupil cost would have been $1,143.06. The 45-15 Plan resulted in an estimated savings of $109.46 per pupil that year, or about 9.6 percent compared to the traditional-term program. (See Table 1.)

Table 2 itemizes the 9.6 percent saving in terms of the percentages saved on specific resources. A summary of that percentage breakdown follows:

Instructional Staff--The teachers and aides who participated in the year-round project were given salary increases proportional to the increases in the length of their contracts. Their salaries were then 25 percent and 31 percent higher, respectively. However, these personnel taught one-third more classes due to the elimination of all non-teaching days for these staff members. The resultant 3 percent per pupil cost reduction is not considered to be necessarily a permanent one.

Support Staff--Support personnel were able to serve the one-third increase in student enrollment without additional help. All of these staff members not already on a 12-month con-

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*Source documents are noted in parentheses according to their entry numbers in the Selected Bibliography. When a colon appears, the numbers following refer to pages in the document cited.

tract were provided 12-month contracts, thereby increasing costs by 8 percent. Since one-third more students were serviced, a 1.9 percent per pupil cost saving resulted.

Buildings--A school building has four component costs: construction costs (principal on bonds), financing costs (interest on the bond), operation costs (utilities and custodial services), and maintenance costs. Greater economy in all of these areas, through greater pupil use of facilities under the 45-15 Plan, resulted in a 4.2 percent per pupil saving of $47.86. These savings are seen as being long-term in nature.

Equipment--A 0.5 percent per pupil saving of $6.00 occurred due to more efficient use of audio-visual equipment, classroom and library furniture, and other furnishings under the 45-15 Plan.

TABLE 1

Prince William County

COMPARISON OF SECONDARY 45-15 WITH TRADITIONAL TERM

Dollars Per Pupil Annually

Resource	Traditional Term Cost	45-15 Cost	Net Saving
Teachers	$ 503.04	$ 469.20	$ 33.84
Aides	34.98	34.18	.80
Classrooms	150.41	121.57	28.84
Classroom Furnishings	32.55	27.80	4.75
Audio-visual Equipment	4.18	3.89	.29
Books and A-V Software	14.05	14.05	--
Gymnasium	51.71	41.83	9.88
Gymnasium Equipment	2.90	2.67	.23
Cafeteria	26.81	21.69	5.12
Cafeteria Equipment	1.54	1.38	.16
Counselors	33.46	29.07	4.39
Librarians	16.52	14.89	1.63
Library	12.90	10.41	2.49
Library Furnishings	3.22	2.84	.38
Offices	7.60	6.07	1.53
Office Furnishings	1.51	1.32	.19
Principals/Asst. Principals	44.27	35.08	9.19
Support Staff	31.40	25.65	5.75
Buses	7.57	7.57	--
Dist. Student Support Staff	2.05	2.05	--
Dist. Instruc. Support Staff	24.78	24.78	--
Dist. Administrative Staff	23.94	23.94	--
Districtwide Offices	6.77	6.77	--
Dist. Office Furnishings	3.74	3.74	--
Coaches	3.59	3.59	--
Misc. Supplies & Expenses	97.57	97.57	--
Total -	$1,143.06	$1,033.60	$109.46

Source: (9:10)

TABLE 2

Prince William County

SUMMARY OF SECONDARY 45-15 COST SAVINGS

Dollars Per Pupil Annually

(Percent of Total Per-Pupil Traditional Term Annual Costs Shown in Parentheses)

STAFF:		
Instructional		
Teachers	$ 33.84 (3.0%)	
Aides	.80 (-%)	
Total Instructional		$ 34.64 (3.0%)
Support		
Counselors	$ 4.39 (0.4%)	
Librarians	1.63 (0.2%)	
Principal/Asst. Principals	9.19 (0.8%)	
Support (Clerical) Staff	5.75 (0.5%)	
Total Support		$ 20.96 (1.9%)
TOTAL STAFF		$ 55.60 (4.9%)
FACILITY:		
School Building Areas		
Classrooms	$ 28.84 (2.5%)	
Gymnasium	9.88 (0.9%)	
Cafeteria	5.12 (0.5%)	
Library	2.49 (0.2%)	
Offices	1.53 (0.1%)	
Total School Building Areas		$ 47.86 (4.2%)
Furnishings and Equipment		
Classroom Furnishings	$ 4.75 (0.4%)	
Audio-visual Equipment	.29 (-%)	
Gymnasium Equipment	.23 (-%)	
Cafeteria Equipment	.16 (-%)	
Library Furnishings	.38 (0.1%)	
Office Furnishings	.19 (-%)	
Total Furnishings and Equipment		$ 6.00 (0.5%)
TOTAL FACILITY		$ 53.86 (4.7%)
TOTAL SAVINGS		$109.46 (9.6%)

Source: (9:19)

From their research results, Prince William County concluded that the 45-15 Plan has demonstrated significant savings and probably will realize greater benefits in the future. This conclusion, they caution, depends upon the efficient utilization or elimination of facility slack. If the system continues or becomes accustomed to having facility slack, the projected savings will not materialize.

Start-Up Costs of the 45-15 Plan

Start-up costs that amounted to $216,344.36 were incurred by Prince William County in initiating the 45-15 Plan. Table 3 lists the various costs involved, including the cost of donated computer time that other districts might have to finance.

In analyzing the table, "Curriculum Work" refers to the development of program designs and educational materials that were appropriate for 45-15 terms. "Staff Workshop" refers to time allowed for planning and coordination among the staff in the 45-15 pilot schools. "Clerical" includes census tabulation and the development of attendance maps, brochures, guides, and various parent and student notifications. "'Quick' Summer Maintenance" covers initial overtime maintenance required before the 45-15 Plan went into effect. Maintenance would be handled in a routine manner thereafter and would be included in the on-going operational costs. "Publications and Curriculum Materials" refers to the actual publishing costs of the above-mentioned brochures, guidebooks, curriculum guides, etc. "Air Conditioning" includes the installation costs for two of the elementary schools. The operational cost of air conditioning was included in the budgets of both the 45-15 and traditional term plans, since all new schools built in Prince William County would have air conditioning in any case. "Evaluation Task Force" includes all the costs involved in assessing the effect of the 45-15 Plan on student achievement, community attitudes, and educational cost.

TABLE 3

Prince William County

45-15 START-UP COSTS

Item		Cost
Curriculum Work		$ 29,237.50
Staff Workshop		8,730.00
Clerical		1,500.00
"Quick" Summer Maintenance		5,000.00
Publications and Curriculum Materials		1,000.00
Air Conditioning (2 of the 3 elementary schools)		123,473.00
Evaluation Task Force		47,403.86
Achievement Component	$ 13,938.17	
Community Attitude Component	19,000.00	
Cost Component	10,750.00	
Auditing Agency	3,715.69	
Total Costs Incurred by Prince William County		$216,344.36
Plus Computer Time Donated by Private Firm		5,400.00
Total Start-up Costs		$221,744.36

Source: (9:47)

Student Achievement

The effects of the 45-15 Plan on academic achievement were evaluated through a comparison of gains on standardized achievement tests in year-round schools and control schools. Sixteen year-round school classes and 11 control classes were administered pre-tests and post-tests approximately four months

later. An analysis also was made of factors other than type of school which could have an effect upon achievement. The general results of the comparison showed no conclusive superiority of the year-round school or the 9-month school in increasing achievement, but did suggest the influence of other factors.

The research study was designed to compare gains in achievement scores among year-round, 9-month traditional, and 9-month modified curriculum schools while controlling for differences in classroom structure, pupil characteristics, and school fiscal characteristics. All the first, third, and sixth grade classes in Prince William County that could be roughly equated in terms of pupil characteristics and school fiscal variables were considered for the study. From this pool, a random sample of 16 year-round classes and 11 control classes was selected, stratified according to grade level and classroom structure, and tested.

Pupils in these classes were administered pre- and post- tests of achievement (Metropolitan Achievement Test, 1970 edition), intelligence (Otis-Lennon Mental Ability Test), and attitudes (the Virginia Affective Reading Index). Pre-tests were given between the 95th and 101st day of the school year. Post-tests were conducted 71 to 76 school days later.

At the initiation of the study, the classes in the sample were almost equal on mathematics achievement and had a difference of two months (.2 of an academic year) in reading achievement. The tests indicated moderate differences in intelligence favoring the 9-month modified schools. These differences were statistically controlled so as not to influence the analysis of achievement gains.

The post-tests of achievement indicated the following:

1. There were differences in achievement gains among classes. These differences were significant in two of six comparisons in grade one (another comparison approached significance), five of eight comparisons in grade three, and approached significance in one comparison of eight at the sixth grade level.
2. The differences in achievement gains could not be accounted for by type of school. In a total of 22 comparisons between schools, there were six differences in achievement gains that were statistically significant. At the first grade level, the 9-month modified school was significantly superior in three out of six achievement areas. In third grade, the 9-month modified was significantly superior in two out of eight comparisons, and the year-round school approached a significant difference in one comparison. At the sixth grade level, there were no differences in eight comparisons. The complete analysis is depicted in Table 4.

In summary, the results of the study indicated that none of the types of schools could be conclusively credited with an advantage in raising achievement scores. This conclusion must be qualified by the fact that the achievement gains were measured over a short period of time (less than four months).

The research study also considered other factors that could affect classroom achievement gains and could differ between year-round and control schools. It analyzed teacher instructional behavior based on systematic classroom observation on the 8-factor scores of OScAR (Observational Schedule and Record) which describe the nature of teacher-pupil interaction. Teacher characteristics and opinions were investigated through the use of a teacher questionnaire.

The investigation of these factors resulted in the following observations. The analysis of instructional behavior did not show any significant differences in teacher-pupil interaction between year-round and control schools. The groups were almost identical in the amount of discussing, lecturing, reprimanding, giving of commands, and questioning. The OScAR data do not prove that there were no differences in teacher behavior or effectiveness, but do identify eight factors in which no differences existed.

There were differences reported in teacher background between year-round and control schools. The year-round school teachers had only half as many years of experience as the control teachers (5 years

TABLE 4

Prince William County

ACHIEVEMENT VS. TYPE OF SCHOOL

Variable	Grade 1	Grade 3	Grade 6
Word Knowledge Gain	9-Month Modified	(Year-round school P = .055)	No Difference
Reading Gain	9-Month Modified**	No Difference	No Difference
Word Analysis Gain	9-Month Modified*	----	----
Total Reading Gain	9-Month Modified**	No Difference	No Difference
Math Computations Gain	----	9-Month Modified**	No Difference
Math Concepts Gain	No Difference	No Difference	No Difference
Math Problem Solving Gain	----	No Difference	No Difference
Total Math Score Gain	----	No Difference	No Difference
Cloze Measure Readability	No Difference	9-Month Modified**	No Difference

Source: (40:4)

*.05

**.01 Significance

vs. 10 years), had been in Prince William County School System less than half as many years as the control teachers (2.6 vs. 6.5 years), and had taught in the specific grade or subject matter area less than 60 percent as many years as the control teachers (4 years vs. 7 years).

According to self-reports of how teachers spend their time in different duties, teachers in 9-month schools spend significantly more time in instruction of the whole class, while teachers in year-round schools spend more time in individualized instruction. Since neither type of school proved to be superior in raising achievement scores, the type of instruction (whole class or individualized) did not appear, by inference, to significantly affect achievement scores.

Attitude Surveys

A survey of attitudes toward the 45-15 Plan was conducted in April 1972. The three groups directly affected by the 45-15 Plan (parents, students, and school staff) were polled. A comparative survey of attitudes was conducted in other areas of the county.

Opinions were obtained through personal interviews with parents, questionnaires administered in groups to students, and questionnaires distributed to all staff members. A total of 3,007 respondents were surveyed in the following sampled groups:

Dale City Parents	400
County-Wide Adults	400
Dale City 4th Graders	578
Dale City 7th Graders	429
County-Wide 4th Graders	399
County-Wide 7th Graders	402
Dale City Staff Members	174
County-Wide Staff Members	225
	3,007

The results of the survey indicate that the majority of those groups directly affected by the 45-15 Plan favor it strongly. Of the sampled Dale City parents whose children attend a 45-15 school, 82 percent support the plan. Sixty-seven percent of the students surveyed indicated a preference for the year-round school program over the two-semester plan. Of the 174 staff members (61 percent) who responded to the questionnaire, 75 percent favored the 45-15 Plan, while 21 percent said that they would endorse the plan if some minor changes were made as to how the plan affects them.

Student Attitudes

In order to sample student opinion regarding the 45-15 Plan, all participating fourth and seventh graders in Dale City were surveyed during April 1972. The 429 seventh graders all attended Godwin Middle School, while the 578 fourth graders represented three elementary schools.

Student preferences for two semesters or the 45-15 Plan are reported in Tables 5 and 6. Sixty-seven percent of the seventh graders and 60 percent of the fourth graders favored the 45-15 Plan over the two-semester plan.

TABLE 5

Prince William County

DALE CITY 4TH GRADE

"How do you feel about going to school on the 45-15 Plan?"

Response	All	Boys	Girls	Neabsco	Dale City	Bel Air	Red	Blue	Green	Orange
Like it better	60%	56%	64%	63%	54%	61%	64%	59%	59%	55%
Don't like it as much	23%	25%	21%	22%	29%	18%	18%	28%	25%	23%
About the same	17%	19%	14%	15%	16%	20%	18%	13%	15%	22%

Source: (3:44)

Sixty percent of the seventh graders and 57 percent of the fourth graders reported approval of "more breaks, more often." Twenty-three percent of the seventh graders also expressed that they "Don't get bored with school/vacations." When asked for disadvantages, 20 percent of the seventh graders and 7 percent of the fourth graders said that year-round school caused vacation problems; 17 percent of the seventh graders disliked their color attendance calendar.

TABLE 6

Prince William County

DALE CITY 7TH GRADE

"How do you feel about going to school on the 45-15 Plan?"

Response	All	Boys	Girls	Red	Blue	Green	Orange
Like it better than than two semesters	67%	69%	65%	59%	72%	81%	58%
Don't like it as much as going for two semesters with summer off	19%	19%	19%	23%	17%	10%	26%
About the same as going to school for two semesters	14%	12%	16%	18%	11%	9%	17%

Source: (3:29)

The year-round school, according to 82 percent of the fourth graders and 72 percent of the seventh graders, has not caused them any problems in school which they did not have the year before.

More than two-thirds (69 percent) of the seventh graders indicated that the 45-15 Plan had not affected their participation in extra-curricular activities. Those who felt that the change in school year had caused problems reported that they either could not participate while on vacation or that returning to school for extra-curricular activities was difficult.

Nearly three-fourths of both fourth and seventh graders (73 percent and 74 percent, respectively) suggested that the change to the year-round schedule had not reduced their number of friendships. Fifty-three percent of the fourth graders and 28 percent of the seventh graders still have the same friends. Twenty percent of the fourth graders and 46 percent of the seventh graders lost some friends but made new ones. A loss in number of friendships was indicated by 11 percent of the fourth graders and 5 percent of the seventh graders.

45-15 Parent Attitudes

The high degree of support for the 45-15 Plan varied little among parents in different attendance areas or between men and women. (The sample consisted of an equal number of women and men.) Lowest support was from parents who had children both on the 45-15 Plan and in high school on a 9-month, traditional school year. Seventy-two percent of these parents liked the plan, while 23 percent were dissatisfied.

"Almost two-thirds" of the parents polled said that their opinion of the 45-15 Plan had not changed since the program began in the summer of 1971 (3:9). Of the 30 percent who had changed their opinion, 88 percent of them had come to support the plan after disliking it initially.

The advantages and disadvantages of the 45-15 Plan were cited by parents as follows:

Advantages Cited:	
Improves education for children	55%
Children don't need 3-month vacation	37%
Better utilization of facilities	21%
Varied vacation/travel opportunities	14%
Less boredom for students	12%
Better than split shifts/overcrowding	8%
Saves money	6%
Disadvantages Cited:	
Other children in family on 2-semester year	22%
Changes in family living patterns, vacations	19%
Educational disadvantages	8%
Prefer traditional school year	5%
Does not improve education	4%

A majority of the parents (55 percent) agreed that the 45-15 Plan is the best way to solve the school system's enrollment problems; 37 percent felt that building new schools was the answer; 8 percent supported other methods. Seventy-three percent felt that the plan should be more than a temporary means of solving enrollment problems, and that it should exist as a permanent program. If the 45-15 Plan were to be expanded to other grade levels or areas of the county, two-thirds of the parents felt that it should include all grade levels, elementary through secondary.

45-15 Staff Attitudes

Of the 274 staff members at the four Dale City schools, 174, or 61 percent, responded to the opinion questionnaires. There was unanimous preference (100 percent) for the 45-15 Plan among administrators, while 75 percent of the teachers preferred the 45-15 Plan. Of those responding to the survey, 89 percent felt that the plan should be utilized as a continuing program.

The advantages and disadvantages of the 45-15 Plan, as viewed by staff members, are listed in Tables 7 and 8. Staff members mentioned the vacation schedule as an advantage most frequently, as did students. No single feature of the 45-15 Plan was agreed upon as a disadvantage. Twenty-eight percent did not offer any disadvantages, and the remainder were equally divided among several concerns.

Most staff members (86 percent) felt that the 45-15 Plan makes it possible for students to learn more efficiently. A number of educational benefits for students were cited, including more continuous education, better retention, less review time necessary, less boredom, and higher interest. Specific problems for students were mentioned by 33 percent of the staff, including lack of recreational facilities during vacations, interference with family vacation patterns, problems in scheduling, and disruption of personal relationships.

Seventy-eight percent of the respondents reported that the 45-15 Plan had not caused any particular instructional problems for them. The remaining 22 percent complained of student changes, broken continuity, and lack of preparation and planning time. When asked what changes they would like, 42 percent reported more paid teacher vacation/leave periods, 28 percent wanted to be on the same schedule as students, and 14 percent indicated improvements in scheduling and increased preparation time.

TABLE 7

Prince William County

DALE CITY STAFF

"What do you like best about the 45-15 Plan?"

Responses*	All	Men	Women	Admin.	Teachers	All Others
Four 3-week vacations	45%	24%	53%	40%	54%	27%
More student interest, motivation; less review	32%	35%	32%	40%	36%	20%
Improved education for pupils	17%	24%	14%	20%	15%	20%
Better teaching conditions	13%	11%	14%	-	19%	2%
Better curriculum	8%	11%	7%	30%	8%	4%
Miscellaneous	6%	5%	6%	10%	3%	13%
Everything	2%	3%	2%	-	1%	4%
Better student retention	1%	-	2%	10%	1%	-
Nothing	1%	-	1%	-	1%	-
No opinion	9%	11%	8%	-	3%	22%

Source: (3:61)

*Respondents gave one or more opinions.

TABLE 8

Prince William County

DALE CITY STAFF

"What don't you like about it?"

Responses*	All	Men	Women	Admin.	Teachers	All Others
No response	28%	32%	26%	40%	21%	42%
Lack of teacher paid vacation/leave periods	13%	22%	12%	-	16%	9%
Miscellaneous	12%	11%	13%	20%	10%	13%
Packing, storage, moving between sessions	11%	5%	13%	10%	16%	-
Lack of preparation, organization, evaluation time	10%	5%	10%	-	14%	2%
Program and student scheduling problems	10%	19%	7%	10%	12%	4%
Nothing	9%	3%	10%	10%	7%	13%
High school not on 45-15 Plan	6%	5%	6%	10%	4%	9%
Interferes with graduate work	4%	3%	5%	10%	4%	2%
Family vacation problems	3%	-	5%	-	2%	9%

Source: (3:62)

*Respondents gave one or more opinions.

County-Wide Opinions

The corresponding parents, staff members, and fourth and seventh graders polled in other areas of Prince William County, who were not affected by the 45-15 Plan, were not as supportive of the plan. Fifty-two percent of the surveyed adults, 73 percent of the school staffs, 18 percent of the seventh graders, and 35 percent of the fourth graders reported that they would like the 45-15 Plan.

Of 400 adults surveyed county-wide, 91 percent had heard of the 45-15 Plan in Dale City, but only 20 percent were judged by the interviewers to understand the plan very well. Opinions were: 52 percent supported the plan, 27 percent did not like it, and 21 percent had no opinion. The closer the physical proximity to the Dale City area, the higher the reported support for the 45-15 Plan (41 percent support in a rural area and 63 percent support in the closest area).

A total of 399 fourth graders and 402 seventh graders were sampled county-wide. Nearly all of them (95% of the seventh graders and 83% of the fourth graders) had heard of the 45-15 Plan in Dale City. The majority were not in favor of the plan, as indicated in the following summary of responses (3:87):

Response	7th Grade	4th Grade
Would not like it	60%	51%
Would like it	18%	35%
Not sure	22%	14%

Students named their desire for a long summer vacation or long vacation trips as the major reason why they would not want to go on the 45-15 Plan (67 percent of the seventh graders and 36 percent of the fourth graders). When asked for advantages to the plan, 35 percent of the seventh graders and 37 percent of the fourth graders gave none. The remaining students mentioned that they could learn more, there would be more breaks more often, and that they could participate in more seasonal activities.

A total of 225, or 68 percent, of the county-wide staff who were sampled returned their opinion questionnaire. Seventy-three percent of the respondents would give the 45-15 Plan a try, 16 percent were uncertain, 4 percent would ask to be transferred, 4 percent would seek employment elsewhere, and 3 percent gave no response. A greater number of staff members indicated that they would support the plan if specific financial and educational benefits could be shown.

Only 37 percent of the teachers thought that students could learn more effectively under the 45-15 Plan, compared to 84 percent among Dale City teachers. The profile of educational benefits that staff members attributed to the 45-15 Plan differed between Dale City and the rest of the county.

TABLE 9

Prince William County

OPINIONS OF 45-15 EDUCATIONAL BENEFITS

Dale City Staff Compared to (or vs.) County-Wide Staff

Chief advantages to 45-15 Plan	Dale City Staff	County-wide Staff
Provides better education	35%	16%
Better retention; less review time	30%	23%
More breaks for students	29%	20%
Higher interest, less boredom	24%	11%
Miscellaneous benefits	15%	2%
Can't say	6%	18%
Better utilization of facilities	2%	32%
Better family/student vacation options	3%	-
No advantages	-	2%

Source: (3:4)

BECKY-DAVID SCHOOL, MISSOURI

45-15 PLAN

The Becky-David School is one of four elementary schools in the Francis Howell Public School District located in St. Charles County, Missouri. The county, a suburban area outside St. Louis, experienced a growth rate of 75 percent between 1960 and 1970. The district's 1969-70 school-year figures indicated a total student enrollment of approximately 4,000 students with 2,400 of these at the elementary level.

The Becky-David School consists of two connected units, primary (1-3) and intermediate (4-6) under separate principalships. Prior to the initiation of the year-round program, both units were ungraded. They contained a total of 48 classrooms and approximately 1,600 students.

The 45-15 Year-Round Plan was adopted by the Becky-David School and put into operation in July 1969 as a means of meeting increased space demands. The attendance area serviced by the Becky-David School was divided into four geographic areas, creating attendance groups of 325 to 375 children each.

Teachers had two basic schedules. The majority of the teachers worked according to the 45-15 schedule, thus teaching a total of 180 days. Teachers who chose to work full-time usually took two or more weeks vacation in the summer and were replaced by other qualified teachers. During the first two years of operation, teachers switched students at the end of each nine-week session, thus teaching a minimum of four different classes per year.

The program was evaluated after the completion of the first 45-15 school year (8,18,26). The evaluation results are reviewed as follows.

Student Achievement

Achievement data for the 1969-70 school year were collected through the district's regular administration of Stanford Achievement Tests (SAT) during late April or early May. A random sample of fourth, fifth, and sixth grade pupils (35 of each grade level) were selected from the population of Becky-David Intermediate School pupils who had attended Becky-David the year previous to the 45-15 school year. A control group was selected from the corresponding grade levels in Central Elementary School, also in the Francis Howell Public School District. Students from the Becky-David School and the control school were matched for grade level, sex, intelligence quotients on the Otis Quick-Scoring Test of Mental Ability, and previous achievement as indicated by the end of the 1968-69 school year Stanford Achievement Test scores. Imperfections in the matching were controlled for statistically during the analysis of achievement.

Sample gains in SAT scores in reading and mathematics were computed for the 1969-70 school year, and comparisons were made between the two schools at each of the three grade levels. Table 10 presents the averaged achievement gains and intelligence quotients for the sampled groups. After controlling statistically for IQ quotients and other control variables, the differences in gains between schools were found to be: (1) statistically significant ($p < .01$) favoring the control group in both reading and arithmetic at the fourth grade level, and (2) not significant in reading or arithmetic at the fifth and sixth grade levels. The Becky-David School study qualified the fourth grade results by indicating that the control group at all grade levels had attended school a few weeks longer at the time of their achievement test, and that this advantage could account partially for the significant difference in gains.

TABLE 10

Becky-David School

MEANS FOR READING AND ARITHMETIC ACHIEVEMENT

AND CONTROL VARIABLES (Intelligence Quotients and Previous Achievement)

Grade	Group	Intelligence Quotients	Reading		Arithmetic	
			Beginning* Achievement	End Achievement	Beginning* Achievement	End Achievement
4th	Becky-David	109.6	4.2	4.8	4.2	4.7
	Control	109.8	4.1	5.3	3.9	5.0
5th	Becky-David	108.2	5.0	6.0	5.1	5.9
	Control	107.7	5.1	6.4	4.9	5.9
6th	Becky-David	107.2	6.0	6.6	5.6	6.3
	Control	107.9	6.2	6.8	5.9	6.5

Source: (8:7-11)

*Note: "Beginning Achievement" scores are based upon the results of tests conducted at the end of the 1968-69 school year.

Attitude Surveys

Parental attitudes toward the 45-15 Plan were evaluated through three questionnaire surveys. The latest reported survey was conducted in May 1971, and is summarized here. A total of 901 questionnaires were sent to parents in all four attendance areas; 53 percent of these were completed and returned. The replies included the following:

What is your child's attitude toward school?

40.5% -- child preferred year-round plan over 9-month plan

10.2% -- either plan was okay

22.6% -- child preferred the 9-month plan

20.1% -- child had expressed little opinion

6.3% -- parent had no opinion

Do you find the 3-week vacations more desirable than the summer vacation?

54.3% -- desirable

24.4% -- no strong feelings

16.6% -- undesirable

4.5% -- no opinion

After experiencing the year-round plan, would you:

83.9% -- prefer to remain on the year-round plan

1.6% -- prefer to go split sessions

10.5% -- prefer to increase property taxes to provide for building enough 9-month schools

3.8% -- other

Would you prefer the extension of the year-round program to the junior and senior high schools?

38.9% -- no

28.8% -- yes

32.1% -- if space needs dictate

If the money were available to build the necessary building, would you desire t return to the 9-month schedule?

35.0% -- yes

55.2% -- no

9.6% -- no opinion

An attempt was made to discover the factors influencing parental attitudes. In a statistical analysis of variabl-, the evidence suggested that general attitudes were formed on the basis of parents' perceptions of the relative effectiveness of the instructional program, and especially the effectiveness resulting from teacher changes every session.

Cost Analysis

The financial evaluation was inconclusive. Scattered data were collected but not combined or interpreted in terms of per student costs. The following findings were reported:

1. It was estimated that building costs over time would be reduced to 80 percent of what they would be under the traditional year. (This is a projection and is not based upon actual results.)
2. The Becky-David School was air-conditioned in 1970 at a cost of $80,000.
3. The potential savings in textbooks, library resources, and other instructional supplies would depend upon the spending policies of the schools.
4. The food services department appeared to have no additional costs operating its program during the summer months, and participation remained about the same.
5. In the area of maintenance, additional major equipment items were purchased to reduce working time. It was projected that this equipment would decrease labor costs over the long run.
6. Except for a small increase in electricity, utilities in 1969-70 remained about the same as under the traditional 1968-69 school year.

CHULA VISTA, CALIFORNIA

45-15 PLAN

The Chula Vista City Elementary School District services an expanding community outside metropolitan San Diego. During July 1971, the district initiated a 45-15 Plan in 4 of its 26 elementary schools. The objective was to provide additional classroom space without incurring the costs of constructing a new school. Approximately 4,000 students, grades K-6, and 100 teachers were involved in the pilot program.

A program evaluation was conducted after the first year of operation (24); the results are summarized here.

Student Achievement

Achievement of year-round pupils during the 1971-72 school year was compared to the achievement of pupils under traditional calendars. Since the evaluation was limited to information gathered through mandated state testing programs, it analyzed data pertaining only to the primary grades and to reading achievement.

One study compared second and third grade reading achievement gains as measured by the end-of-the-year administration of the Cooperative Primary Reading Test. Pupils were randomly selected from the four year-round schools and from four traditional schools whose student population provided as close a match as possible in terms of mean IQ (all IQ scores in this study were measured by the Cognitive Abilities Test), mean reading achievement scores, and ethnic composition. Despite efforts to control for all variables other than type of school year calendar, the schools differed in terms of classroom structure. Three of the year-round schools had open-classrooms, while the four traditional schools all had closed classrooms.

Results of the study are summarized in Table 11. Test performance gains (between May 1971 and May 1972) were not significantly different at either the second or third grade level.

TABLE 11

Chula Vista, California

GAINS IN READING ACHIEVEMENT TEST SCORES

Means and Standard Deviations

Gain: May 1971-May 1972	Traditional			Year-Round			t-test
	No.	Mean	SD	No.	Mean	SD	
Second Grade Girls	35	0.93	0.57	45	0.89	0.62	0.28
Second Grade Boys	39	0.85	0.56	35	0.65	0.66	1.41
Third Grade Girls	45	0.82	0.66	37	0.62	0.52	1.54
Third Grade Boys	40	0.78	0.62	49	0.57	0.75	1.38

Source: (24:29)

A similar study compared reading gains achieved by matched pairs (matched by grade, sex, IQ, and previous reading achievements levels) of second and third graders from year-round and traditional year schools. The traditional school students were drawn from schools having socio-economic levels comparable to the year-round schools.

Table 12 summarizes the data. At the second grade level, the mean difference between matched pairs of boys was not statistically significant, while the mean difference for matched pairs of girls was statistically significant beyond the .05 level of confidence, favoring the traditional school girls. At the third grade level, the mean difference between matched pairs was not statistically significant for boys or girls.

TABLE 12

Chula Vista, California

COMPARISONS PAIRED READING ACHIEVEMENT TEST SCORES

FOR MATCHED TYS AND YRS SECOND AND THIRD GRADERS

	Number of Pairs	TYS Mean	YRS Mean	Mean Difference ($\bar{D}$)	Standard Deviation ($Sb_{\bar{D}}$)	t-test
Second Grade Boys	63	2.41	2.25	0.16	0.83	1.54
Second Grade Girls	61	2.76	2.43	0.33	0.90	2.87*
Third Grade Boys	53	3.10	3.11	0.65	0.65	0.07
Third Grade Girls	66	3.42	3.31	0.80	0.59	1.34

Source: (24:29)

*$p < .01$

Student Attitudes Toward Self and School

Second and fifth grade pupils were randomly selected from four traditional schools and from each of the attendance groups at the four year-round schools. The traditional and year-round schools were matched as closely as possible in terms of mean IQ, reading achievement, and ethnic composition. Students were administered questionnaires at the beginning and end of the school year in order to appraise any changes in their attitudes toward self (as measured by the Self Appraisal Inventory) and school (as measured by the School Sentiment Index).

The results indicated that the traditional school and year-round school boys did not differ significantly in their change of attitudes during the year, nor did second grade girls. Fifth grade girls differed significantly in their change of attitude toward school (significant beyond the .05 level of confidence)--but not toward self. Attitudes toward school became statistically less favorable during the year for traditional-year girls, while year-round school girls experienced slightly more favorable attitudes.

Student reactions to the year-round program, in specific, were measured in another study during October 1972. Brief questionnaires were administered to 10 percent of the students in Grades 4, 5, and 6 who had attended the full 1971-72 year-round program. The students were asked to indicate their preference for the traditional or year-round calendars and to state their likes and dislikes regarding the year-round program. The results showed that 132 (65 percent) preferred the year-round calendar and 72 (35 percent) preferred the traditional school year. The pupils' responses to the questions regarding likes and dislikes are summarized in Table 13.

TABLE 13

Chula Vista, California

COMMENTS MADE BY PUPILS

	Percentage of Pupils Who Made Comment	
What pupils liked about YRS:	Boys	Girls
Spaced vacations	26%(23)	46%(53)
Intersession	12%(11)	5%(6)
More vacations	2%(2)	4%(4)
You don't forget over vacation	2%(2)	11%(13)
You don't get tired/bored with school	1%(1)	3%(3)
You don't get bored with vacation	1%(1)	4%(4)
Year-round is more fun	2%(2)	3%(3)
I like it because you do more work	0%(0)	3%(3)
I like the teachers	1%(1)	2%(2)
I like everything about year-round	7%(6)	6%(7)
What pupils disliked about YRS:		
Vacations/summer too short	19%(17)	4%(4)
Have to go to school during summer/hot	3%(3)	4%(5)
Vacation conflict with parents	2%(2)	8%(9)
In school when friends out/other school/other section	3%(3)	9%(10)
In school when older siblings out	1%(1)	4%(4)
Intersession	2%(2)	4%(4)
Forget during vacations	2%(2)	0%(0)
Miss special holidays	1%(1)	3%(3)
Get mixed up/changing rooms/the schedule	2%(2)	2%(2)
I don't like anything about year-round	4%(4)	3%(3)

Source: (24:45)

Student Attendance

An examination of student records indicated that year-round pupils had a higher proportion of unexcused absences than did traditional school pupils. Also, year-round pupils averaged 7.1 sick days whereas traditional school pupils took an average of 6.7 sick days. The study suggested that some confusion or conflict with family schedules during the initial year might have been responsible for the higher absenteeism.

Teacher Attendance

Year-round teachers on both the 184-189 day contracts and the extended 190-238 day contracts took an average of 3 percent of their contracted work days as sick leave. Traditional school teachers took an average of 4 percent of their contracted days as sick leave.

Teacher Morale

Teacher morale at the year-round schools and at matched traditional schools was measured by means of The Purdue Teacher Opinionaire. Questionnaires were distributed at the start and end of the school year. Of the year-round teachers, 68 percent completed both pre- and post-test forms; no indication is given of the percent returning both forms in the traditional schools. The test scores indicated that both groups of teachers started the year below the publisher's norm but ended the year at the norm. Thus, there was no measured difference in teacher morale between year-round and traditional schools.

Parent Attitudes

Parents of year-round school students were interviewed at the beginning and end of the school year. A total of 198 parents was randomly selected and interviewed in July 1971; 177 of these were questioned again in April 1972.

During July, 53 percent favored the year-round program; 22 percent preferred the traditional school year; and 25 percent were undecided. By the end of the pilot year, attitudes had shifted to 79 percent favoring the year-round program, 17 percent preferring the traditional school year, and 4 percent remaining undecided. Of the 72 parents (41 percent of all parents interviewed) who also had children in secondary schools, 25 percent stated that they had difficulty with the conflict in schedules.

As part of the April interview, parents were questioned regarding the advantages and disadvantages of the year-round schedule. Parental comments, and their frequency of occurance, follow:

TABLE 14

Chula Vista, California

COMMENTS MADE BY PARENTS

	Percentage of Parents Who Made Comment
Positive Comments	
Academic advantage	58% (102)
Motivation increased	51% (90)
Intersession worthwhile	35% (62)
Vacation at times other than summer	24% (43)
Savings on school clothes	19% (33)
Children kept off streets	13% (23)
Efficient use of school plant	11% (20)
Can see child more often	8% (14)
Better plan for working parents	6% (11)
Sibling relationships aided	2% (3)
Neutral Comment	
Junior/Senior High School should go year-round	19% (34)
Negative Comments	
Disrupts vacations	18% (32)
Hard on clothes	6% (11)
Hard for working mothers	6% (10)
Cannot do things as a family	4% (7)
Do not like combination classes	4% (7)
Academic disadvantage	3% (6)
Intersession does not meet expectations	3% (6)
Staggered cycle is confusing	3% (5)

Source: (24:18)

Administrative Duties

According to principals, the year-round program resulted in increased administrative duties. The larger pupil population meant an increase in scheduling, record keeping, and information dispersion.

The staggering of both pupil and teacher attendance made scheduling of meetings, special services, and mandated testing programs more difficult. Communication in general became more complex. The shifting of classes from one room to another resulted in greater attention to space allocation and a need for moving and storage facilities.

Finances

No formal financial evaluation was conducted. Some scattered information was obtained through interviews with the Assistant Superintendent. He reported that the greatest savings resulted by avoiding the cost of purchasing a land site, constructing a new building, and paying bond interest.

The budget for operational expenditures in the year-round schools was based upon the same per pupil cost as in the traditional schools. Some per-pupil savings were noted in the cost of gas, electricity, and services contracted on a 12-month basis, such as building insurance.

VALLEY VIEW SCHOOL DISTRICT, ILLINOIS

45-15 PLAN

The Valley View Elementary School District is located in the suburban community of Lockport, Illinois. It encompasses an area of approximately 40 square miles outside metropolitan Chicago. During June 1970, the district initiated a 45-15 Plan in all of its elementary schools as a means of absorbing a rapidly increasing student population. At that time, the district enrolled a total of 7,713 pupils in 7 elementary schools. An increase in the student population to an estimated 22,000 pupils was forecasted for 1980.

After the first two years of operation, the Valley View Elementary School 45-15 Plan was evaluated by the school district (12); the results of that evaluation are summarized here. As a consequence of the reported success of the elementary 45-15 Plan, the Valley View High School implemented a 45-15 Plan in July 1972. The outcomes of that program have not yet been evaluated.

Attitude Surveys

All professional staff within the district completed a 48-item questionnaire at the beginning of the 1970-71 school year and at the end of the 1971-72 school year. Generally, the attitudes of staff were stable over the 2 years of operation. A significant change in attitudes ($p < .05$) occurred in only 11 items, as shown in Table 15.

TABLE 15

Valley View School District

CHANGES IN OPINIONS OF THE PROFESSIONAL STAFF

TOWARD THE 45-15 PLAN (1970 VS. 1972)

A = More strongly agree than 2 years ago.

D = More strongly disagree than 2 years ago.

1.	The track your own children are on is the best for your family.	A
2.	Your own attitude toward the 45-15 Plan is good.	A
3.	Families have gotten used to several short vacations and most have given mild or strong support after one year.	A
4.	The families in Track A (first to enter the program) are the most negative toward the 45-15 Plan because they had to start first.	D
5.	It is much harder to teach under the 45-15 Plan.	D
6.	Absenteeism has been much higher during the summer months.	D
7.	Half or more of the children return to the schools during their vacations at least once a week (libraries, extra-curricular activities, field trips).	D
8.	The 45-15 Plan will be in operation three years from now.	A
9.	There has been a greater variation in the sizes of classes under the 45-15 Plan.	A
10.	Taxpayers without children feel more positive toward District #96.	D
11.	All in all, the 45-15 Plan is the most exciting educational innovation I have ever participated in.	D

Source: (12:7)

Reactions of students, as measured by a 25-item checklist, were the most stable. There were no significant changes in opinion regarding the three main areas included in the questionnaire: (1) teacher fatigue and irritability, (2) work habits, and (3) the 45-15 Plan itself. "Overall they started with somewhat negative feelings about school and the 45-15 Plan, and the feelings remained so." (12:9)

As the community gained experience with the 45-15 Plan, attitudes became more favorable. Clear distinctions were not made, however, between different features or aspects of the plan. A strong halo effect appeared to exist; positive attitudes toward the school system in general carried over to other specific items and vice versa. The characteristics of the 45-15 Plan most frequently approved by members of the community were:

(1) Avoiding over-crowded classrooms through the 45-15 Plan
(2) Information about the 45-15 Plan
(3) Worth of the 45-15 Plan
(4) Efficient use of tax money
(5) Better use of vacation time.

The study also identified a "floating hostility" (12:8) that affected attitudes toward the school system, the 45-15 Plan, team teaching, open classrooms, and other educational innovations being considered by the district.

Student Achievement

Student samples stratified by grade, school, sex, attendance track, and academic quartiles, were selected from each elementary school in the Valley View School District. The samples were administered an unidentified form of achievement test in April/May of 1970 (prior to the initiation of the 45-15 Plan), 1971, and 1972. While all three test results indicated significant differences between schools, no sample scores changed significantly over the two-year period. Changes not reaching significance were more often gains than losses. Researchers reported, "Overall there were twice as many positive gains as losses and several increases approached the 5 percent level of statistical significance." (12:9)

Cost Analysis

Schools whose enrollment increased by one-third had higher total costs but lower per pupil costs. A comparative breakdown of costs before and after the implementation of the 45-15 Plan is presented in Table 16.

In addition to lower per pupil costs, school officials estimate a $7.5 million savings in building construction costs for the Valley View District. (20:52)

Administrative Duties

School principals and other administrators were interviewed regarding the effects of the 45-15 Plan on their administrative duties. The general agreement was that the 45-15 Plan is functional, but that it requires much more administrative work. Increases in duties were the result of the following factors(12):

(1) Students had to be divided into four geographic attendance areas with a balance of children at each grade level.
(2) Teacher contracts had to be adjusted to the needs of the school and the desires of the staff. The greatest obstacle in this regard was teacher inflexibility or preference for working September to June. The many options under the 45-15 Plan had to be emphasized.

(3) Arrangements had to be made for transfering and storing materials during a teacher's vacation period. The problem was alleviated by providing teachers with storage cabinets for their classroom materials.

(4) Four separate transportation schedules had to be developed--one for each attendance group.

(5) The 45-15 Plan put unexpected pressure upon the district to develop individualized instruction, multi-graded team teaching, and open space or informal education.

TABLE 16

Valley View School District

A COMPARISON OF PER PUPIL COSTS

	Valley View 1969-70 (Enrollment 5,580)		Valley View 45-15, 1970-1971 (Enrollment 7,440)	
	Total	Per Pupil	Total	Per Pupil
Administration	$ 208,000	$ 37.27	$ 238,000	$ 31.98
Instruction	2,859,300	512.42	3,800,000	510.75
Health	34,200	6.13	45,600	6.13
Operation	389,900	69.87	500,000	67.20
Maintenance	34,100	6.11	40,000	5.38
Fixed Charges	163,200	29.25	217,600	29.25
Other (except food)	45,100	8.08	60,000	8.06
Net Current	$3,733,800	$ 669.13	$4,901,200	$ 658.75
Transportation	296,400	53.12	390,000	52.42
Debt Service	488,400	87.53	488,400	65.65
Capital Outlay	(766,000)	(137.27)	(766,000)	(102.96)
	$ 784,800	$ 140.65	$ 878,400	$ 118.07
Total	$4,518,600	$ 809.78	$5,779,600	$ 776.82

Source: (20:52)

DADE COUNTY, FLORIDA

QUINMESTER PLAN

The Dade County Public School District is an urban district encompassing the city of Miami, Florida, and operating a total of 229 schools, K-12. Between 1960 and 1970, the district's enrollment (1-12) increased by 37.8 percent.

The Dade County Quinmester Program was one of two plant utilization plans implemented in 1971 as a means of (1) utilizing existing school facilities more efficiently, and (2) decreasing capital expenditures. As a side benefit, the plan was expected to result in educational improvements.

In order to achieve maximum plant utilization, it would have been necessary for the quinmester schools to mandate equal attendance at each of the five sessions. Since it was decided that community mores made this procedure unacceptable, the quinmester program was designed with an optional vacation session. Pupils could attend any four or all five quinmesters.

The quinmester calendar of five 9-week sessions was implemented in the 1971 summer quinmester in one high school and four junior high schools. Two additional high schools began the quinmester program in September 1971. After the pilot 1971-72 year, the program was expanded to total 19 schools starting with the 1972 summer session. The program evaluations (2,6,33,35) reviewed here are based mainly upon the experiences of the seven pilot schools during the 1971-72 quinmester school year.

Utilization of Quinmesters

During the 1971 summer quinmester, 3,384 students attended academic programs. Of these, 340 selected quinmesters other than the summer quinmester as their vacation period during the 1971-72 school year.

By the summer of 1972, the 9-week quinmester had been implemented in a total of 19 secondary schools, thus replacing the 6-week summer school schedule of previous years. The summer quinmester required, with a few exceptions, that students attend a full day session. Students were drawn from 143 Dade County Public Schools and 13 local private schools. In all, 16,276 students (15.07 percent of the Dade County secondary school population at the end of the ninth month of the 1971-72 school year) attended the 1972 summer session. Attendance at the end of the summer quinmester totaled 10,540, with an average daily membership of 11,179.

According to figures provided by principals, students attended the 1972 summer quinmester for the following reasons:

42 percent for remediation
34 percent for acceleration
14 percent for enrichment
7 percent for vacation during another quinmester

As a result of the 1972 summer quinmester, 593 students were graduated after completing the quinmester and 698 students were advanced from junior to senior high school.

Teacher utilization of quinmesters was limited by two conditions: (1) teachers did not have the option of vacationing during quinmesters other than the summer quinmester, and (2) teaching assignments for the 1972 summer quinmester were limited in number and not available to all teachers that requested them.

The data collected during the initial year of quinmester implementation suggested that the voluntary utilization of quinmesters for vacationing did not immediately appeal to a large number of students and was not available to teachers. Thus, one of the quinmester objectives of expanding the utilization of facilities was not realized.

Effect upon the Learning Situation

An immediate effect of the quinmester program was the reorganization of the curricula into 9-week units of instruction. Principals of the seven pilot schools reported that extensive use was made of the curricula developed for the quinmester program, but that more courses were included in their programs than could be adequately supported by staff and facilities during the first year. Constraints on curriculum flexibility included: (1) personnel certification, and (2) limitation in the number of possible new teaching assignments. The principals suggested that the number of new course offerings in any subject area be limited, in the first year, to one and a half times the number of teachers in that department.

The 9-week course length was acceptable to a majority of the students and teachers. The course content was evaluated in terms of implementation and instructional materials. Fifty percent of the teachers and 21 percent of all students surveyed suggested that modifications should be made in the implementation of course content. The quality of instructional materials and the adaptability of materials to a 9-week term were found acceptable by 65 percent and 80 percent of all teachers respectively. Yet, 46 percent of all teachers recommended some modifications. Problems relating to the adequacy or availability of supplementary materials were cited by 44 percent of all teachers.

A majority of principals and teachers reported that the educational climate was positive. Teachers preferring the quinmester organization were a majority in 6 of the 7 pilot schools. A majority of the teachers regarded the opportunity for immediate repeat of a course to be an advantage of the quinmester program. A disadvantage cited by 51 percent of the teachers was the increased difficulty experienced in establishing rapport with students.

Preference for the quinmester program was expressed by a majority of students. An advantage of the quinmester program noted by 78 percent of the students was the greater number of courses available.

The quinmester's effect upon student behavior was assessed by principals, teachers, and students. Six of the seven principals reported a decrease in discipline problems. Thirty-three percent of the teachers reported an increase in problems; 29 percent reported a decrease; and 31 percent reported no change in student discipline. Students responded in the following manner:

16 percent reported an increase in behavior problems
8 percent reported a decrease in behavior problems
11 percent regarded the situation as unchanged
35 percent saw discipline problems as being unrelated to the program
30 percent had no opinion

Student Achievement

The quinmester's effect upon student achievement was assessed by two means: a comparison of standardized test results and a comparison of reported failure rates. Stanford Achievements Tests in reading and mathematics were administered on a county-wide basis in 1971 and 1972. Test results in the seven quinmester schools indicated that "approximately 50 percent" of the grade level scores in reading and mathematics were lower than the same grade level scores in 1971 (35:11). However, a preliminary analysis of the 1972 county-wide scores revealed that an even greater number of grade levels (county-wide) had dropped below 1971 mean scores. No indication was given, though, of the quantitative differences between 1971 and 1972 grade level scores at the quinmester schools or at the county level.

The 1972 test scores in the quinmester schools were compared grade by grade with scores attained in schools within their own geographic area and within the county as a whole. Results showed that quinmester schools in three of four geographic areas scored higher than the area averages in mathematics and reading. All seven quinmester schools achieved higher scores in reading and mathematics than the county-wide averaged scores, which was not true of these schools in 1971.

The investigation of 1970-71 failure rates in five subject areas placed the seven pilot school rates below county rates prior to the implementation of the quinmester program. In general, these schools maintained their position below county failure rates during the 1971-72 quinmester school year, but the margin of difference was lessened in three of the five subject areas under consideration (language arts, science, social studies). Senior high schools were credited with the movement toward county rates. In one subject area (mathematics) the difference between county and quinmester rates was greater, since county failure rates increased while quinmester rates did not.

It was concluded that the implementation of the quinmester program did not adversely affect student achievement as measured by standardized test scores in reading and mathematics and by failure rates in five subject areas.

Participation in Extracurricular Activities

A majority of principals, teachers, and students thought that participation was unchanged under the quinmester program. One school, with a large number of early graduations, reported a decrease in participation. Although early graduation in this school could not be viewed as a principal result of the quinmester program, it was suggested that the increased opportunity for early graduation under the quinmester plan could cause a decrease in extra-curricular participation.

Administrative Concerns Related to Program Implementation

The long-term goal of the quinmester program is to reschedule completely each student's program into 9-week units. The pilot experience indicated that this goal was impractical during the first year or two of implementation since the necessary support services and resources at the school and county levels were not available.

Pilot schools designed their own scheduling plans. These ranged from the complete rescheduling of students and staff each nine weeks, as was done in one senior high school and two junior high schools, to less complex plans where portions of the traditional, year-long master schedule were retained. Yet, all principals and 73 percent of the teachers reported more time spent on scheduling. The greater demands in regard to scheduling were interpreted as: (1) an expected product of the quinmester program, since greater scheduling time would be required to realize the flexibility potential; and (2) due to a lack of clerical personnel and data processing support services to facilitate the expanded scheduling task.

Cost Analysis

A cost analysis of the quinmester program resulted in the following findings:

(1) The direct costs per student were higher in the fifth quinmester than in any of the first four quinmesters. This was due to lower average daily attendance and higher average teacher salaries as a result of more "preferential employment."

(2) The direct costs per student in the fifth quinmester were lower than in a comparable projection of the 1971 regular summer school program.

(3) To the extent that summer quinmester students attended for the purpose of acceleration, vacationing during one of the other four quinmesters, or remediation that prevented them from repeating a year, the school benefitted from more efficient utilization. The educational costs for

these students would have had to have been incurred anyway, except for the difference in per student costs between the summer session and a regular quinmester.

TABLE 17

Dade County, Florida

THE 1972 SUMMER QUINMESTER COSTS

Average Daily Attendance	10,000
Percent Opting for Fifth Quinmester	7%
	700
Fifth Quinmester Cost Per Student	$ 221
Total Cost of Fifth Quinmester	$154,700
Total Cost of Regular Quinmester	$140,000
Total Difference in Costs	$ 14,700

Source: (6:11)

An analysis of the actual attendance of the 1972 summer quinmester indicates that approximately 7 percent of the students enrolled with the intention of vacationing during another quinmester. For these students, the cost of attending the summer quinmester was estimated to be $154,700, or $14,700 higher than the approximate costs during a regular quinmester. The study suggests that the greater the daily attendance, and the greater the number of these students who opt for another vacation period or for early graduation, the less the differential in costs.

ATLANTA PUBLIC SCHOOLS, GEORGIA

FOUR-QUARTER PLAN

The Atlanta Public School System is an urban system serving the student population of metropolitan Atlanta, Georgia. It operates a total of 23 high schools and 99 middle and elementary schools.

During September 1968, an optional four-quarter plan was implemented in all of Atlanta's public high schools except for one which was closed for repairs during the summer fourth quarter. The quarter plan schedule divided the school year into three 12-week quarters and one 10-week summer quarter with lengthened class periods. A new curriculum was introduced, consisting of quarter-length courses that were intended to keep sequential dependency to a minimum.

The four-quarter plan and its special curricula were designed to improve educational quality in each of four areas: (1) regular core instruction, (2) enrichment opportunities, (3) remedial education, and (4) exploratory and vocational opportunities. The program also was intended to meet more adequately the individual needs of students by offering a greater number of course options. A total of 850 different high school courses were developed by the beginning of the 1973-74 school year, reports Curtis Henson, Assistant Superintendent of Schools (36:12).

As of the 1973 summer quarter, fourth quarter operation had been implemented in 63 elementary and middle schools. In these schools, the fourth quarter operated for only six weeks, three to four hours per day.

The Atlanta Four-Quarter Plan was evaluated after the 1970-71 school year (14). Operation of the 1973 summer fourth quarter was evaluated in a separate report (5). The findings of these two studies are reviewed here.

A Survey of Principal Opinions

A survey of elementary, middle, and high school principals was conducted after the close of the 1973 fourth quarter. The survey gathered opinions or impressions regarding (1) courses that were outstanding in meeting the needs of pupils, (2) courses that should be discontinued, (3) major problems encountered, (4) major successes experienced, and (5) suggestions for improvement.

High Schools

In general, vocational-technical courses and enrichment or exploratory courses were viewed as most popular and successful. The specific courses cited by principals included: tailoring, food preparation, metal technology, auto repair, poetry, Black studies, photography, advanced mathematics, advanced chemistry, and visual art. Courses in physical education and remedial education were also cited as beneficial for some students.

On the negative side, seven courses were deemed unsuccessful and were recommended for discontinuation; however, each course received a negative appraisal from only one high school principal. In other words, the success of these courses varied among schools and depended upon course preparation and presentation.

The major problems identified by principals were poor attendance and a high rate of withdrawal--over 40 percent of enrollment. Student vacationing and a lack of air conditioning in the schools were blamed for the poor attendance and high withdrawal. Several suggestions for alleviating these problems were offered: (1) provide air conditioning, (2) encourage student commitment by emphasizing the advantages

of the fourth quarter, (3) shorten and intensify the quarter, and (4) establish a cooperative program with the Neighborhood Youth Corps.

Principals noted that the fourth quarter program was most successful in providing students with practical, tangible experiences and individualized attention. They also cited the high student motivation and interest that developed in enrichment courses.

High school principals suggested several means of improving the over-all operation of the fourth quarter including: (1) consolidating fourth quarter programs, thereby increasing enrollment and program efficiency, (2) installing air conditioning in schools that operate consolidated programs, and (3) adjusting the fourth quarter schedule to allow for more vacation time.

Elementary and Middle Schools

Principals of elementary and middle schools cited typing, visual art, sewing, and dancing as the most successful courses. Remedial reading and mathematics were mentioned as valuable in meeting the individual needs of students. Principals observed that the more successful courses were generally more individualized.

Very few courses were recommended for discontinuation. Principals were most critical of "poorly prepared and executed" reading courses (5:4). Courses in vocational skills were generally unpopular among students and had low enrollments.

As in the high schools, poor attendance and high withdrawal were major problems. Once again, the lack of air conditioning was deemed most responsible.

According to principals, the most successful aspects of the fourth quarter program were the innovations in courses and the greater individualization of instruction; many educational opportunities were offered that are not normally available during the regular school year.

Principals made the following suggestions for the improvement of the fourth quarter elementary and middle school programs: (1) lowering of the pupils enrolled/teacher ratio to between 12/1 and 14/1 to allow for greater individualization of instruction, (2) availability of special funds for enrichment activities such as field trips, and (3) minor rescheduling of the fourth quarter to provide a longer vacation period before or after the summer session.

Utilization of the Fourth Quarter

Of the 102,208 pupils enrolled in Atlanta's public schools during the 1972-73 school year, 29,643 (29 percent) enrolled in the 1973 fourth quarter. The high school fourth quarter enrollment represented 36 percent of the last active roll for the regular 1972-73 school year. Enrollment at individual high schools ranged from 263 to 1,287.

Since full-day attendance was not mandatory, students could enroll in 1 to 5 courses. (Six periods were scheduled per day.) In order to standardize attendance data across schools, the average daily attendance (ADA) was based upon a full-time, 5-hour attendance equivalent. Students were given one-fifth of an attendance credit for each hour they were in attendance each day. For example, a student who attended (rather than enrolled) four hours in a day accumulated four-fifths of an ADA. On the basis of ADA, the number of students in attendance during any period of the day averaged at 281. The mean ADA/teacher ratio was 15/1. A summary of the high schools' fourth quarter enrollment, ADA, and other data is presented in Table 18.

TABLE 18

Atlanta Public Schools, Georgia

DATA SUMMARY FOR HIGH SCHOOL FOURTH QUARTER PROGRAMS

School	No. of Pupils Enrolled	Hours in Session Each Day	Days Taught	Adjusted ADA	Different Courses Taught	Full-Time Teacher Equivalents	Admin.	Libr.	Other Profs.	Teacher/Pupil Load Enrollment	Load ADA
Archer	650	6	51	412	47	25.0	3	1	0	26	16
Bass	336	6	51	149	50	12.6	3	1	1	27	12
Brown	823	6	51	397	73	33.0	3	1	0	25	12
Carver	506	6	51	185	35	11.0	2	1	1	46	17
Douglass	1,287	6	51	797	61	41.5	3	1	1	31	19
East Atlanta	478	6	51	247	51	12.0	2	1	1	40	21
Fulton	383	6	51	195	63	16.5	3	1	1	23	12
George	425	6	51	221	49	19.0	3	1	1	22	12
Grady	364	6	51	199	70	19.0	1	1	2	19	10
Harper	818	6	51	431	56	25.0	3	1	0	33	17
Howard	387	6	51	198	39	14.0	1	1	2	28	14
Murphy	563	5	51	229	41	14.0	3	1	1	40	16
North Fulton	263	5	51	151	37	18.0	1	1	2	15	8
Northside	395	6	51	229	42	16.0	1	1	3	25	14
Price	382	5	51	157	51	14.0	3	1	1	27	11
Roosevelt	493	6	51	191	67	14.0	2	1	3	21	8
Smith	409	5	51	195	44	10.0	2	1	5	41	20
Southwest	607	6	51	282	61	16.6	2	1	1	37	17
Therrell	640	6	51	284	71	19.0	3	1	1	34	15
Turner	485	5	51	268	40	15.2	1	1	1	32	18
Washington	809	6	51	401	72	26.0	3	2	5	22	11
West Fulton	650	6	51	365	35	17.0	2	1	1	38	21
TOTAL	12,650	127	1,122	6,183	1,157	426.0	50	23	34		
MEAN	552	6	51	281	53	19.0	2	1	2	30	15

Source: (5:6)

The average enrollment in high school classes reached a peak during mid-morning hours and declined as the school day progressed. The mean number of students enrolled per period in the 23 high schools was as follows:

First period -- 373
Second period -- 430
Third period -- 441
Fourth period -- 355
Fifth period -- 252
Sixth period -- 189

The mean fourth quarter full-time-equivalency attendance rate in all high schools was 51 percent of enrollment. Attendance during the six daily periods followed the same general pattern as did enrollment: attendance rates were best for mid-morning classes and worst for late afternoon classes. The high school programs experienced an average withdrawal rate of "about 42 percent" (5:5), with little variance among high schools.

At the elementary and middle school levels, a total of 17,490 pupils enrolled in the summer 1973 fourth quarter. This number is 28 percent of the elementary and middle school enrollment during the last month of the regular 1972-73 school year. Enrollment in the 99 schools ranged from 86 to 691, with an average of 278 pupils. Grade levels 2, 3, and 4 had the highest enrollments. Since the elementary and middle school programs operated mainly in the morning, the afternoon attendance problems experienced by the high schools were avoided.

Table 19 summarizes by geographic area the elementary and middle school data, including adjusted ADA. The ADA/teacher ratio averaged 14/1.

TABLE 19

Atlanta Public Schools, Georgia

ELEMENTARY AND MIDDLE SCHOOL FOURTH QUARTER PROGRAMS

Data Summary by Geographic Area of Atlanta

	No. of Pupils Enrolled	Hours in Session Each Day	Days Taught	Adjusted ADA	Different Courses Taught	Full-Time Teacher Equivalents	Admin.	Libr.	Other Prof.	Teacher/Pupil Load Enrollment	Teacher/Pupil Load ADA
					AREA I						
TOTAL	3,572	57.0	422	1,956	97	169.0	16	16.0	4		
MEAN	238	3.8	28	130	7	11.3	1	1.1	0	21	11
					AREA II						
TOTAL	2,631	32.5	282	1,753	76	106.0	11	10.0	9		
MEAN	263	3.3	28	115	8	10.6	1	1.0	1	26	11
					AREA III						
TOTAL	2,799	39.0	300	1,535	52	108.0	11	11.0	11		
MEAN	254	3.5	27	140	5	9.8	1	1.0	1	26	14
					AREA IV						
TOTAL	3,806	37.0	280	2,262	84	144.5	11	10.0	2		
MEAN	381	3.7	28	226	8	14.5	1	1.0	0	27	16
					AREA V						
TOTAL	4,682	62.5	478	2,784	108	160.8	19	12.6	33		
MEAN	275	3.7	28	164	6	9.5	1	0.7	2	30	18
GRAND TOTAL	17,490	228.0	1,762	9,690	408	684.3	68	59.6	59		
GRAND MEAN	278	3.6	28	154	6	10.9	1	0.9	1	26	14

Source: (5:11-14)

Cost Analysis

An estimate of 1973 fourth quarter cost was based upon measurable expenses above and beyond those incurred during the regular school year. Thus, only the additional cost of operating the summer fourth quarter was considered. The fourth quarter was not considered on an equal basis with the other three quarters in sharing the cost of administrative salaries (administrators were all on 12-month contracts), building insurance, books and educational hardware, and building repair.

The average, additional daily costs for the fourth quarter were an estimated $3.44 per ADA at the elementary and middle school levels and an estimated $4.01 per ADA at the high school level. These figures include the cost of teacher salaries, utilities beyond those normally consumed during the summer months, and the few materials specially purchased for use in the fourth quarter. According to the report, "...many schools used only materials on hand and ordered no extra materials." (5:15). Materials utilized during the fourth quarter but purchased under the regular school budget were not credited to the fourth quarter costs.

There were large programmatic differences in costs, with ranges between $3.00 and $6.00 at the high school level and between $1.00 and $8.00 at the elementary and middle school levels. Schools with larger ADA's had relatively smaller daily costs per ADA and vice versa. The relationship was reported to be significant ($p < .01$) at all school levels.

Fourth quarter costs were financed by use of both general and compensatory funds. General funds were provided by the Atlanta Board of Education. Compensatory funds were largely federal funds provided under Title I, ESEA. A breakdown of costs into general and compensatory fund categories resulted in the following:

High School level:

General Funds -- $3.85 per ADA per day

Compensatory Funds -- $0.16 per ADA per day

Elementary and Middle School level:

General Funds -- $2.36 per ADA per day

Compensatory Funds -- $1.08 per ADA per day.

During the regular school year, the Atlanta Public School District is reimbursed by the state for a proportion of the general funding. The summer fourth quarter program received state reimbursement only for special categories of instruction, such as education of the handicapped and trade and industrial education. There also were 25 cases in which trade or industrial education teachers, who were hired on a 12-month basis, had either no summer duties or classes too small to meet state minimum requirements for reimbursement.

Compensatory funds accounted for an average 4.2 percent of the total fourth quarter costs at high schools and an average 41.5 percent of the total at elementary and middle schools. The high proportion of compensatory funding at the elementary and middle school levels was a result of the remedial emphasis of these programs.

CONCLUDING REMARKS

Evaluations of year-round programs are both limited in number and generally inconclusive in nature. In most cases the evaluations identify program outcomes that were dependent upon a particular interaction of educational variables. Researchers have had difficulty in isolating a year-round design (and its effects) from other variables (and their effects) such as curricula design, classroom structure, and experience or expertise of teaching. Consequently, the measurable differences that have been recorded between year-round and traditional schools cannot be viewed conclusively as the result of year-round operation.

The effects of year-round operation also have been confounded by the disruptive effects of change. Studies that have been conducted after or during the first year of program operation have caught the staff and students in a period of transition or adjustment. This transition has been more disruptive for some programs than others, depending upon the adequacy of staff preparation, the receptiveness of the students and community, and the mechanics by which the program was implemented. In some cases, year-round schools have overburdened their systems by attempting to implement too many changes at once. Generalizations regarding the actual value or potential of the program design would be premature and misleading if based only upon initial program results. Further research is needed after year-round schools have had an opportunity to develop stable programs, thus giving a more accurate picture of the effects.

In view of these precautions, six observations can be offered at this time:

1. School districts have avoided or postponed large capital outlay for additional facilities and have reduced per pupil expenditure by some types of year-round operation.
2. Year-round operation has been accepted by an increasing percentage of staff, students, and parents as they have gained familiarity and experience with the new type of operation.
3. According to most measurements of performance, student achievement has not been significantly affected by the change to year-round operation.
4. Year-round operation has tended to result in greater administrative responsibility.
5. Some family conflicts have developed when schools in a community have operated under different school year schedules.
6. Year-round operation seems to have facilitated or stimulated the development of individualized instruction in some cases.

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Parks, David, et al. *A Comprehensive Bibliography on Year-Round Education*. Blacksburg, Virginia: National Council on Year-Round Education, College of Education, Virginia Polytechnic Institute & State University.